Claims:

1. A method of providing bandwidth fairness in a wireless network, the method comprising:

5   determining bandwidth requirement for a particular service interval for each of a plurality wireless stations in a network;

determining an allocated transmission time for each of the plurality of wireless stations based on a minimum physical transmission rate; and

fragmenting a packet of at least one of the wireless stations if the at least one wireless

10   station transmits at other transmission rates that are less than the minimum physical transmission rate.

2. A method as recited in claim 1, wherein the allocated time for each of the plurality of wireless stations is the proportional to the quantity of date to be sent by the respective

15   stations during a service interval.

3. A method as recited in claim 1, wherein for each of the at least one wireless station a number of the fragments is equal to the minimum physical transmission rate divided by the respective other transmission rate.

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4. A method as recited in claim 1, wherein the allocated time is equal to the total data of all packets generated in the beacon interval divided by the minimum physical transmission rate.

25   5. A method as recited in claim 1, wherein the wireless network is a multiple physical transmission rate wireless network.

6. A method as recited in claim 5, wherein the wireless network is a Generalized Packet Radio Service (GPRS) network.

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7. A method as recited in claim 5, where in wireless network is a Wireless Local Area Network (WLAN).

8. A method as recited in claim 1, wherein each of the at least one wireless stations transmits all remaining fragments after all wireless stations that transmit at the minimum physical transmission rate have completed transmitting their packets.

9. A method as recited in claim 8, further comprising maintaining a particular quality of service QoS for each of the wireless stations that maintain transmission at the minimum physical transmission rate during a service interval.

10. A method as recited in claim 1, wherein each of the at least one wireless stations transmits all remaining fragments until its physical transmission rate is greater than the minimum physical transmission rate.

11. A wireless network, comprising:

at least one access point; and

a plurality of wireless stations, wherein in each service interval, the access point allocates a transmission time for each of the wireless stations based on their transmission requirements at a minimum physical transmission rate that is fixed for the service interval.

12. A wireless network as recited in claim 11, wherein the plurality of wireless stations transmit at the minimum physical transmission rate.

13. A wireless network as recited in claim 12, wherein if any of the plurality of wireless stations change their transmission rate to a lower transmission rate than the minimum physical transmission rate during the service interval, each of the wireless station that change their transmission rate fragment their respective packets.

14. A wireless network as recited in claim 12, wherein a number of fragments is equal to the lower transmission rate divided by the minimum transmission rate.

15. A wireless network as recited in claim 11, wherein the transmission time is equal to the total data of all packets generated in the beacon interval divided by the minimum physical transmission rate.

16. A wireless network as recited in claim 11, wherein each of the plurality of wireless stations is adapted to transmit at multiple physical transmission rates.

17. A wireless network as recited in claim 16, wherein the wireless network is a Generalized Packet Radio Service (GPRS) network.

18. A wireless network as recited in claim 16, where in wireless network is a Wireless Local Area Network (WLAN).

19. A wireless network as recited in claim 13, wherein a particular quality of service (QoS) is maintained for each of the plurality of wireless stations that transmit at the minimum physical transmission rate for the entire service interval.

20. A wireless network as recited in claim 13, wherein each of the wireless stations that change their transmission rate to a lower transmission rate than the minimum physical transmission rate during the service interval send their remaining fragments after all wireless station that transmit at the minimum transmission rate have completed transmission of their respective packets.